

RARE ABERRANT FORMS OF UTAH CYNTHIA:
THE PAINTED LADY (LEPIDOPTERA: NYMPHYLIDAE)

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The butterflies and moths of Utah have always attracted the attention of students of nature and are therefore usually the first group of insects studied by beginning students of entomology. As a result of this and of the activity of several amateur lepidopterists, a rather complete collection of Utah Lepidoptera is now contained in the Brigham Young University collection.

In 1902 Chester Van Buren, who was a naturalist on the Harvey Cluff expedition to South America, made a small collection of Central American and Colombian Lepidoptera. These formed the nucleus of the university Lepidoptera collection. In 1930 the Tom Spalding collection of the Utah Lepidoptera was purchased. Mr. Spalding had spent many years collecting Lepidoptera in various parts of Utah and had accumulated more than 500 species. In 1940 Dr. L. D. Foutz, a dentist and amateur naturalist of Payson, Utah, contributed his collection of 63 species and 730 specimens. Fourteen topotypes of *Argynnis pfoutsi* Gunder were included in the Pfoutz collection.

During World War II, Dr. D Elden Beck, on leave from the university and as a captain in the army, was stationed in the Solomon Islands. He and several Brigham Young University students deposited many Lepidoptera from areas of the South Pacific Islands in the university collection.

In 1960 the Ashby B. Boyle collection of Lepidoptera was contributed to the university by Mrs. Boyle. This valuable collection contains 450 determined species of butterflies and moths. Mr. Boyle was very careful in his preparation of the specimens. These, along with collections made by staff members of the department over the past 40 years, make up a rather sizeable and valuable collection of the native Lepidoptera of the Great Basin area.

Prior to 1970, the Lepidoptera collection was housed in several areas in the Department of Zoology. With the recently added space and development of the new insect range in the George H. Brimhall Building, the moths and butterflies are being systematically arranged into more than 250 drawers.

I wish to express my appreciation for the opportunity of working with the university collection and with the staff members of the

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Figs. 1-8. *Cynthia* spp.: 1, *cardui*, dorsal aspect; 2 *cardui*, ventral aspect; 3, *cardui* ab. *elymi*, dorsal aspect; 4, *cardui* ab. *elymi*, ventral aspect; 5, *carye*, dorsal aspect; 6, *carye*, ventral aspect; 7, *carye* ab. *mulleri*, dorsal aspect; 8. *carye* ab. *mulleri*, ventral aspect.



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department. The facilities provided by the university through Dr. Joseph Murphy, chairman of the Department of Zoology, and the aid and advice given by Drs. Vasco M. Tanner and Stephen L. Wood are greatly appreciated.

I am grateful to Dr. W. Revell Phillips, Department of Geology, for his cooperation and assistance in making the accompanying photographs.

The following discussion and figures of rare aberrant forms of *Cynthia cardui* Linnaeus and *C. carye* Huebner are based upon specimens in the Brigham Young University collection and my personal one. These aberrant forms have not previously been reported from this area.

No attempt is made here to consider the various anatomical factors which form the basis for the classification of these species or the characteristics that depart from the normal type.

THE PAINTED LADY

Cynthia cardui (Linnaeus, 1758)

This species (Figs. 1 and 2) is probably the most universally distributed butterfly, found worldwide except in the Arctic, the Antarctic, and South America. *Cynthia cardui* often occurs in Utah during April and May in migrating swarms. A form, *kershawi*, is reported from some Pacific Islands, Australia, and New Zealand.

The Brigham Young University collection of Lepidoptera contains a specimen (Figs. 3 and 4) which, with slight variation, compares favorably with the aberrant form *C. cardui elymi* Rambur (1829) as illustrated by J. A. Comstock (Butterflies of California, plate 42, Fig. 8). This butterfly was collected 27 Aug. 1925 by Ashby D. Boyle near his residence in Salt Lake City, Utah. At that late date in the year, the specimen appeared to be the product of a local generation rather than migration.

Martin and Truxal (1955) list four specimens of *C. c. elymi* in the Los Angeles County Museum. All are from California, collected from March to June; Leighton (1946) reports specimens of *C. c. elymi* from the state of Washington; and Dimock (1968) describes inducing experimental aberrations of *C. cardui* by chilling the pupae for 14 days at 36°F.

THE WESTERN PAINTED LADY

Cynthia annabella Field, 1971

This species (Figs. 5 and 6) ranges along the west coast of the United States and as far east as Utah and Colorado.

Field (1971) designated this North American population as a new species: *Cynthia annabella* relegating the name *Cynthia carye* Hübner to the South American representative.

Aberrant individuals occur in California and, I suspect, over the territory where they breed but are overlooked because the per-

centage of aberrant individuals is small. *Cynthia annabella* is often mistaken for *C. cardui*. A small number of *C. annabella* often appear, together with *C. cardui* on their northward flights, in Utah during April and May.

On 30 July 1957 I was fortunate to net a *C. carye muelleri* Letcher (Figs. 7 and 8) on a larkspur flower in my garden in Salt Lake City, Utah.

Cynthia annabella ab. *muelleri* Rambur (1898), *C. annabella* ab. *elymi* Rambur (1829), and *C. virginicensis* ab. *ahwashtee* Fox (1921) show the same type of maculation, probably an atavistic tendency, suggestive of a prototype of this group.

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